

U.S. Antarctic Marine Living Resources Program

2013/2014 Weekly Field Reports

Cape Shirreff, Livingston Island

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Science Report

Seabirds

1. Approximately six weeks have elapsed since the peak hatch for chinstrap penguins. Chinstrap chicks from our reproductive study plots completed crèche formation this week, with 70% of the 100 reproductive study nests having successfully crèched chicks. This concludes our chinstrap reproductive success study.
2. We monitored 39 known-aged chinstrap penguin nests throughout the season and all active nests have now crèched. This concludes our chinstrap known-aged reproductive success study with chicks successfully crèched from 71.8% of monitored nests.
3. The annual census of chinstrap penguin chicks was conducted on 13 February. A total of 3498 chicks were counted on the Cape Shirreff rookery. That count is 14.2% larger than last year's count of 3064, but still lower than the 16 year mean of 5699. The ratio of chicks to nests counted in the nest census earlier this season was 0.98. That ratio is higher than last year's ratio of 0.73, but on par with the 16 year mean of 0.98. The chick to nest ratio for the control colony is 0.89 which is lower than the mean ratio of the total rookery.
4. On 15 February we weighed and banded 169 gentoo penguin chicks. The weights are used as an index of condition. The average weight was 4109 g (s.d.= 564 g) which is 5.2% higher than the previous year's mean of 3906, but 3.6% lower than the 16 year average mean of 4263. On 16 February, we banded 210 chinstrap chicks. In the future, re-sights of these chinstrap and gentoo bands will help us determine cohort survival.
5. We have finished collecting 60 diet samples from both species of penguin (20 gentoos, 40 chinstraps). The average krill length from gentoo diet samples was 44.5mm, and the sex ratio of krill in was 47.4% male, 52.1% female with 0.5% juvenile krill of undetermined sex. The chinstrap diet data will be analyzed for the next week's site report.
6. We have recovered all the biologging instruments (five PTTs, three TDRs and one GPS) deployed on gentoo penguins. The data collected will be analyzed post-season to provide information on the gentoos' post-crèche foraging behavior.
7. Following last week's large snow event we no longer have any brown skua pairs with two chicks. We continue to monitor five territories with one chick and 17 pairs have failed.



Pinnipeds

8. Five more fur seal pups of the original 30 CCAMLR attendance study females have died, which brings the total to 21 study females who have now lost their pups.
9. Average trip lengths continue to be just over three days, though the sample sizes are becoming smaller due to pup losses. The mean weekly values for trip durations of all females with living pups from 12/8/2013 through 2/9/2014 has ranged from 3.04 (s.d. ± 1.05) to 3.74 (s.d. ± 1.05).
10. We continue to monitor our adult tagged female population and mother pup pairs to get a measure of reproductive success and loss of pups due to leopard seal predation. Our current estimate for pup loss to leopard seal predation as of 18 February climbed to 61.8%.
11. Systematic surveys of defined areas of the Cape for the 500 per annum fur seals tagged as pups continued this week. This will give us a measure of tags sighted per unit of effort for different cohorts and for different areas of the Cape. Return percentages of animals from recent cohorts are as follows: 2008/09 (0.4%), 2009/10 (3.0%), 2010/11 (0.8%), 2011/12 (5.5%). To date we have not seen any yearling fur seals.
12. We have flipper tagged 17 fur seal pups for future demographic studies and cohort success. These were the pups of tagged adult females. Our remaining 233 tags for the year will be deployed over the next week.
13. This week we collected our ninth fur seal diet sample of ten scats. To date 90 scats have been collected, and 83 have been processed.
14. On 14 February we completed our fourteenth weekly Cape-wide phocid census. We counted 152 southern elephant seals, 14 Weddell seals, and 10 leopard seals.
15. As of 17 February we have recorded 318 sightings of 33 tagged leopard seals. We have recorded an additional 32 sightings of untagged or otherwise unidentified seals which have been added to our photo-identification database.
16. We completed three more leopard seal captures this week. To date, eight GPS location instruments have been recovered from leopard seals, and another remains deployed. To date we have successfully performed sixteen leopard seal captures.



17. We took advantage of some calm days this week to operate the APH-22 hexacopter in order to estimate size of hauled out leopard seals, establish aerial coverage of fur seal breeding beaches, and map/census penguin colonies. This week we obtained coverage of two more leopard seals of known mass, and all of the eastern penguin colonies.

Weather

18. We have had a wet week with today making the 5th consecutive day of precipitation. Winds averaged 11.7 mph with a maximum of 42 mph. The predominant directions were west (51.3%), east (31.7%) and north (13.8%). The average temperature was 0.7°C with a high of 2.9°C and a low of – 2.3°C. Mean daily solar radiation was 10,375 Wm². Sunrise is now at 5:28 AM (CLST) and sunset is at 8:54 PM (CLST).

Camp

19. It was a busy week for science, and a rough weather week for camp improvements; however, we did manage to replace an aging propane line for the main camp stove, and also calibrate the new stove oven (thanks to Tony for helping state-side!).
20. The heavy rain this week yielded five new barrels of fresh water.
21. We would like to thank the Ocean Prediction Center (OPC), Ocean Forecast Branch of NOAA's National Weather Service (NWS) for providing weather forecasts which have been used to plan our work efficiently and keep our team safe.

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